

THREE MORE NEW SPECIES OF *LACHENALIA* AND ONE NEW VARIETY OF AN EARLY SPECIES (LILIACEAE)

W. F. BARKER

(Compton Herbarium, Kirstenbosch, Private Bag X7, Claremont 7735 R.S.A.

Bolus Herbarium, University of Cape Town, Private Bag, Rondebosch 7700, R.S.A.)

ABSTRACT

Three new species of *Lachenalia* and one new variety of an early species are described, and the ripe seeds are used as diagnostic characters of the genus.

UITTREKSEL

'N VERDERE DRIE NUWE *LACHENALIA*-SPECIES EN EEN NUWE VARIETEIT VAN 'N VROEË SPECIES (LILIACEAE)

Drie nuwe *Lachenalia*-species en een nuwe varieteit van 'n vroeë species word beskryf, en die ryp sade word as 'n onderskeidende kenmerke vir die genus gebruik.

Key words: *Lachenalia*, sp. nov., Liliaceae, seed, diagnostic characters.

INTRODUCTION

Of the four species described *Lachenalia schelpei* is the most recent discovery, one bulb having been collected in the fruiting stage on the Hantam Mountains by Professor E. A. Schelpe in 1980; when it flowered in 1982 it proved to be unique.

The seed too is distinctive, being one of the largest in the genus, and the long ridged aril is slightly bulbous at the apex. The seeds of the three other plants belong to the group with inflated arils. *L. physocaulos* has a small seed with a short aril, in *L. arbuthnotiae* and *L. aloides* var. *vanzyliae* the seeds are slightly larger. In the former the aril is of medium length, while in the latter it is long.

Lachenalia schelpei W. Barker, sp. nov.; bulbo ovoideo bulbilis albis numerosis, ad basim faciculatum, distinguitur.

Accepted for publication 30th May, 1984.



FIG. 1.

Lachenalia schelpei; 1. Whole plant; 2. Young inflorescence; 3. Part of inflorescence; 4. Four flowers and bracts. (*Schelpe* s.n. sub NBG 127340).

Folia duo, lanceolata vel oblongo-lanceolata, maculis magnis viridibus, purpureo-vittatis basaliter. *Inflorescentia* subspicata multiflora. *Bracteae* angustae, lanceolatae, in statu gemmis prominenti. *Flores* parvi, oblongis-urceolati, patentes vel cernui, albi et virides. Segmenta interna superantia segmenta externa. Segmenta interna imbricata, ostium angustum formans. *Stamina* aequaliter dispositum circa ostium perianthii. *Semina* magnum, ovoideum, arillo longo porcato. *Arillus* bulbosus apicem versus.

Type Material: Cape Province—3119 (Calvinia): Hantamberg, Calvinia (-BC/-BD), 30/6/1982, E. A. Schelpe s.n. sub NBG 127340 (NGB, holotype; BOL, isotype).

Plant 225 mm high. *Bulb* ovoid, 25 mm diam., with a few dark brown membranous scales, and numerous white bulbils clustered round the base. *Leaves* two, lanceolate to oblong-lanceolate, light green, up to 180 mm long and 25–40 mm broad, acute, upper and lower surfaces with large flecks of green, merging into bands of maroon on the loosely clasping bases. *Peduncle* slender, up to 100 mm long, densely spotted with dark maroon. *Inflorescence* subspicate, many-flowered, up to 100 mm long and 30 mm diam.; flowers small oblong-urceolate, spreading to slightly cernuous, scented; pedicels very short, bracts long, narrow-lanceolate, membranous, whitish, very conspicuous in the bud stage. *Flowers* 10 mm long, 5 mm diam.; tube 2 mm long, white, narrowing at the base; outer segments 5 mm long white with greenish-brown gibbosities and pale green keels; inner segments 7 mm long, obovate, white with a green spot at the apex and a pale green keel shading to blue at the base, all overlapping to form a narrow mouth; stamens just exerted, the anthers arranged symmetrically round the rim of the mouth of the perianth; ovary ovoid, 5 mm long, 3 mm diam., pale green; style white up to 6 mm long, finally well exerted beyond the stamens. *Capsule* obovate, 5 mm diam.; seeds large ovoid with a long ridged aril which is slightly bulbous at the apex.

DIAGNOSTIC CHARACTERS

Although *Lachenalia schelpei* is only known from one collection, it is unique and worthy of specific rank. Its numerous small, white and green, oblong-urceolate flowers are almost sessile and subtended by narrow linear lanceolate bracts which are longer and particularly prominent in the bud stage. The stamens are arranged symmetrically and shortly exerted beyond the narrow mouth, the yellow anthers forming a ring. Its two lanceolate to oblong-lanceolate leaves are banded on the loosely clasping bases. The large seed has a long ridged aril which is slightly bulbous at the apex.

The reason why it has only been collected once may be due to the fact

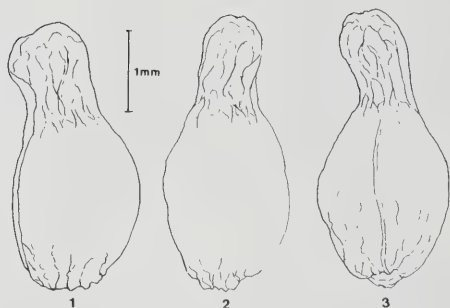


FIG. 2.

Lachenalia schelpei: 1. Seed side view; 2. Seed from above; 3. Seed from below. (*Schelpe* s.n. sub NBG 127340).

that it flowers in June to July. The type bulb was collected in seed in September 1980 by Professor E. A. Schelpe, in whose honour it is named. The bulb was grown in a pot and flowered on 30 June 1982. Several young bulbs flowered in cultivation in June 1983.

SPECIMENS EXAMINED

CAPE PROVINCE—3319 (Calvinia): Hantamberg, Calvinia (-BC/-BD), 30/6/1982, E. A. Schelpe s.n. sub NBG 127340 (NBG, holotype; BOL, isotype).

Lachenalia physocaulos W. Barker, sp. nov.; pedunculo inflato marroni-no minute et dense maculato, folio singulari lineari-conduplicato, abrupte dilatato in basim membranaceum album amplectentem, distinguitur.

Flores parvi, multi, cernui vel patentes. *Tubus* caeruleus pallidus. *Segmenta* externa alba. *Segmenta* interna pauxillum patentia, pallida purpurea, superantia segmenta externa. *Stamina* exserta. *Semina* parvula, globosa. *Arillus* inflatus, terminalia brevis.

Type Material: Cape Province—3319 (Worcester): Between Robertson and Macgregor (-DD), 13/9/1962, Lewis 5635 (NBG, holotype).

Plant 130–300 mm high. *Bulb* globose, 10–15 mm diam; outer tunics membranous, light brown. *Leaf* one very occasionally two; blade linear-conduplicate 180 mm long, 10 mm broad, glaucous-green, margin sometimes

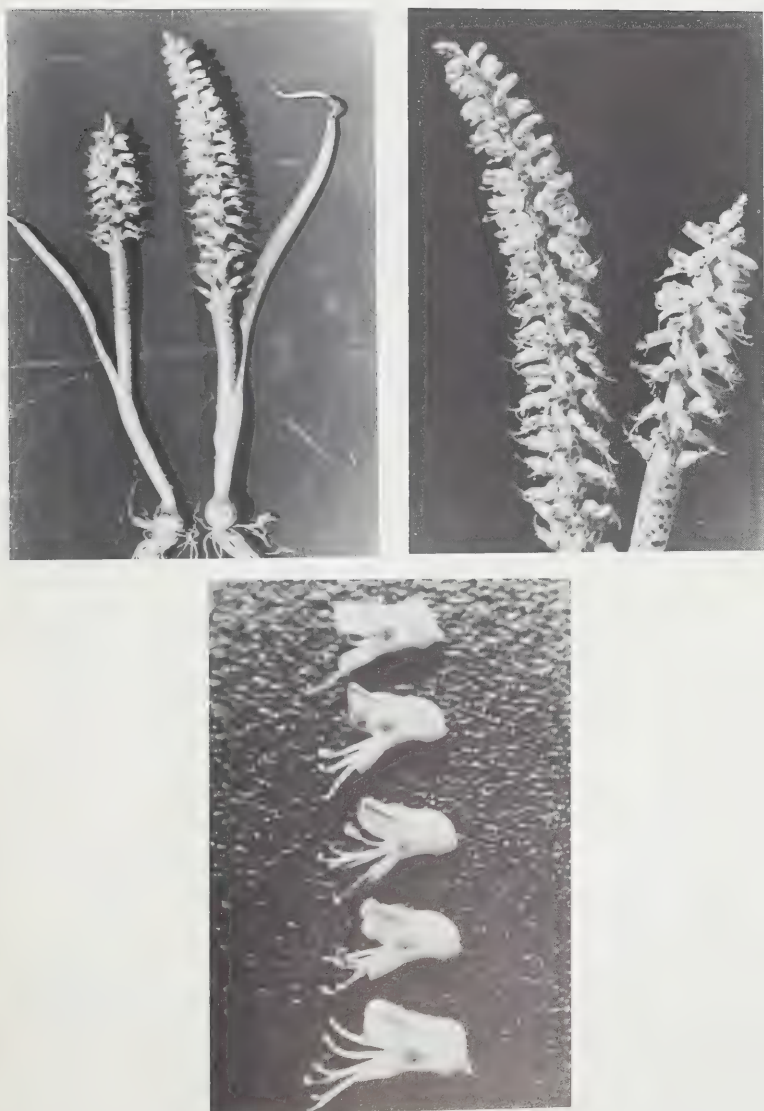


FIG. 3.

Lachenalia physocaulos: 1. Two plants; 2. Two inflorescences; 3. Five flowers.
(Wisura 452).

slightly undulate, base widening suddenly to form a white membranous clasping base. *Inflorescence* 60–150 mm long, 20–25 mm diam., subspicate; flowers many, dense, campanulate, spreading to cernuous; pedicels very short; rachis inflated toward the base, densely spotted with maroon; bracts very small, becoming narrow-lanceolate toward the apex. *Peduncle* inflated, broadest below the inflorescence, up to 180 mm long, 10 mm diam. at the widest part, densely spotted with maroon, shading to magenta at the base. *Flowers* campanulate, 9 mm long, rounded at the base; tube 2 mm long, very pale blue; outer segments ovate, up to 6 mm long, 4 mm wide, pale blue at the base, shading to white with greenish-brown gibbosities; inner segments slightly spreading, obovate, 8 mm long, 4,5 mm wide, shining pale magenta with brownish-green keels; stamens well exerted; filaments up to 13 mm long, pale magenta. *Ovary* ovoid, 2,5 mm diam; style exerted up to 9 mm long, pale magenta. *Capsule* ovoid, 5 mm diam., membranous; seed very small, globose, aril inflated, terminal, short.

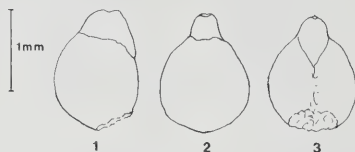


FIG. 4.

Lachenalia physocaulos: 1. Seed side view; 2. Seed from above; 3. Seed from below. (van Reenen s.n. sub NBG 108607).

DIAGNOSTIC CHARACTERS

Lachenalia physocaulos is characterised by its small, globose bulb, its usually single, glaucous, linear-conduplicate leaf which widens suddenly into a white membranous clasping base, its inflated, spotted peduncle and rachis, its many subspicate, campanulate, pale magenta flowers and its much exerted stamens. Its seed falls into the group with a short, terminal, inflated aril. It occurs in a sandy habitat.

The species has been given the specific name *physocaulos* on account of its inflated peduncle and rachis. It is not unique in this respect, as other species such as *L. mutabilis*, *L. violacea* and *L. ventricosa* also have inflated peduncles, but they differ in other respects. They all have seeds with inflated arils of varying lengths.

SPECIMENS EXAMINED

CAPE PROVINCE—3319 (Worcester): Between Robertson and Macgregor (-DD), 13/9/1962, *Lewis* 5635 (NBG, holo.); Erfdeel Farm, 2,2 m from Breede River

Bridge, on Robertson-Macgregor road, 24/8/1974, *van Reenen s.n.* sub NBG 108607 (NBG), 12/8/1974 (fruiting), *van Reenen s.n.* sub NBG 108607 (NBG); Erfdeel Farm 7 m S of Robertson on Road to Macgregor, 13/9/1969, *Wisura* 452 (NBG). —3420 (Bredasdorp): National Bontebok Park, Swellendam (-AB), Sept. 1962, *Liebenberg* 6467 (NBG, PRE).

Lachenalia arbuthnotiae W. Barker, sp. nov.; inflorescentia spicata densa floribus oblongis erectis-patulis laete flavis, distinguitur.

Folia uno vel duo, lanceolata, plerumque maculis magnis purpureis. *Flores* laete flava. Segmenta interna leviter longiora segmentis externis. *Stamina* aequantia segmenta interna. *Semen* arillum inflatum, longitudine media habet.

Type Material: Cape Province—3418 (Simonstown): Isoetes Vlei, Cape Flats, Wynberg (-BA), 19/9/1966, *M. Thomas s.n.* sub NBG 93529 (NBG, holotype).

Plant up to 400 mm high. *Bulb* globose, 15–20 mm diam.; outer tunics membranous, light brown. *Leaves* 1–2, lanceolate up to 120 mm long, 20 mm broad, light green, plain to heavily spotted above with dark purple; clasping base white, plain to lightly spotted, up to 60 mm long. *Peduncle* up to 140 mm long, minutely spotted with purple. *Inflorescence* spicate up to 200 mm long, 25–30 mm diam., many-flowered, dense, flowers erecto-patent; bracts white, membranous, narrow-lanceolate. *Flowers* 10–13 mm long, oblong, bright yellow; tube 3–4 mm long, yellow tinged with green; outer segments oblong, 5–8 mm long, yellow tinged with green, gibbosities pale green; inner segments 2–3 mm longer than outer, obovate-oblong overlapping and scarcely patent, 7–10 mm long, bright yellow, paler at the margins; stamens as long as inner segments; ovary ovoid 4 mm long, pale green; style white as long as stamens. *Capsule* membranous, oblong, 10 mm long; seeds globose with inflated aril of medium length.

DIAGNOSTIC CHARACTERS

Lachenalia arbuthnotiae is characterised by its dense spicate inflorescence of bright yellow, erecto-patent, oblong flowers with the inner segments a little longer than the outer, overlapping and scarcely patent, and the stamens as long as the inner segments. The one or two lanceolate leaves are usually spotted above with purple, densely so, in the plants in the type locality. The seed has an inflated aril of medium length.

Lachenalia arbuthnotiae is intermediate between *L. orchoides* (L.) Ait. and *L. fistulosa* Bak. The three species all have seeds with inflated arils of various lengths. *L. orchoides* has larger more tubular flowers with the inner segments longer in proportion to the outer and more patent, and the inflor-

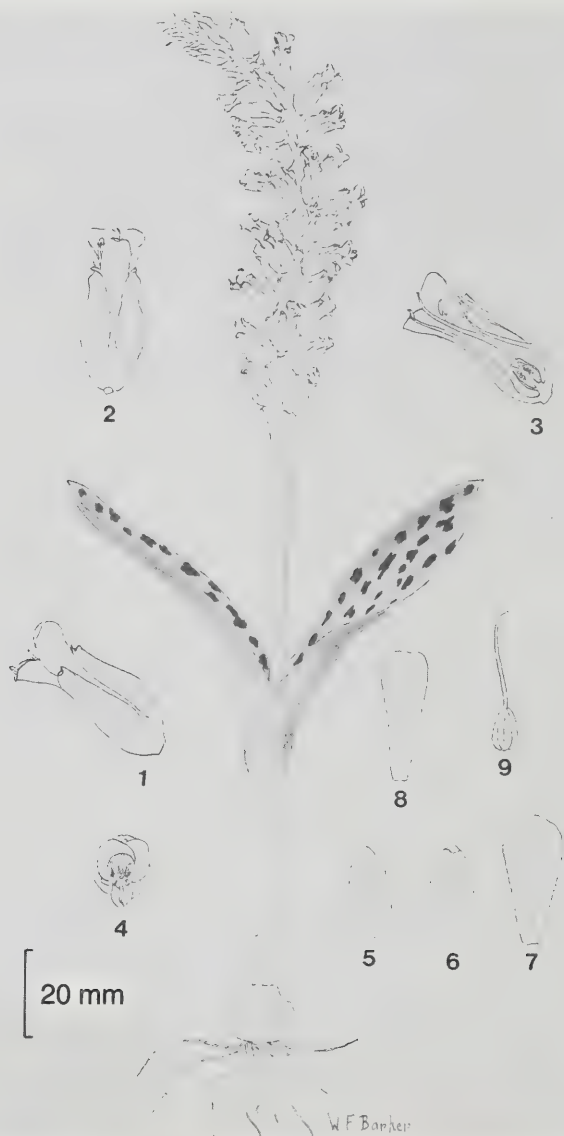


FIG. 5.

Lachenalia arbuthnotiae: 1. Flower side view; 2. Flower from below; 3. Longitudinal section of flower; 4. Flower front view; 5. Lower outer perianth segment; 6. Upper outer perianth segment; 7. Upper inner perianth segment; 8. Lower inner perianth segment; 9. Gynoecium, all $\times 3$. (*Arbuthnot* s.n. sub BOL 21954).

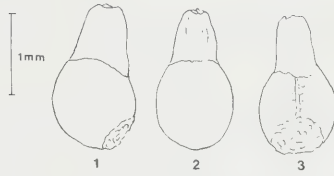


FIG. 6.

Lachenalia arbuthnotiae: 1. Seed side view; 2. Seed from above; 3. Seed from below. (Thomas s.n. sub NBG 93529).

escence is usually fewer-flowered and more lax. It has a very wide distribution and occurs in many types of habitat. *L. fistulosa* is daintier than either of the others, the flowers are smaller and the inner segments recurved and often undulate. It appears to be confined to rocky mountain slopes, while *L. arbuthnotiae* is found on the low lying areas of the Cape Flats.

The species is named in honour of Miss I. Arbuthnot who collected it first in 1931 and who for many years was technical assistant at the Bolus Herbarium, and after she retired mounted many thousands of specimens at the Compton Herbarium.

SPECIMENS EXAMINED

CAPE PROVINCE—3318 (Cape Town): Blaauwberg Road (-CD), 28/8/1931, *I. Arbuthnot* s.n. sub BOL 26457 (BOL); Cape Flats near Klipfontein (-DC), 29/9/1934, *Salter* 4868 (BOL).
—3418 (Simonstown): Plumstead Flats (-AB), Sept. 1931, *Arbuthnot* s.n. sub BOL 20455 (BOL); Isoetes Vlei, Cape Flats Flora Reserve (-BA), 19/9/1966, *Thomas* s.n. sub NBG 93529 (NBG, holo., iso.), 17/11/1966 (fruiting) *Thomas* s.n. sub NBG 93530 (NBG), 2/10/1960 (fruiting) *Stephens* s.n. sub NBG 93444 (NBG); Faure, Cape Flats (-BA/-BB), 10/8/1934, *I. Arbuthnot* s.n. sub BOL 21954 (BOL), 20/9/1938, *Bolus* s.n. sub NBG hort. 936/32 (NBG); Cape Flats near Fireworks Factory on road to Swartklip, 15/10/1967 (fruiting), *Rourke* 953, 7/9/1972, hort. Compton Herbarium, *Rourke* 953 (NBG).

***Lachenalia aloides* (L.f.) Hort, ex Aschers. & Graebn. var. *vanzyliae* W. Barker, var. nov.**; differt a aliis varietatibus coloratibus, floribus pallidibus et subtilibus tinctis. Flos tubum pallidum sub viridem habet; segmentum externum album carinis subviridibus, segmentum internum pallidum chlorinum marginibus albis.

Folia uno vel duo, lanceolata, ovata vel lorata. *Inflorescentia* racemosa. *Flores* penduli, tubiformes, segmenta interna superantia segmenta externa. *Stamina* segmenta interna aequantia. *Semina* arillo longo inflato terminali.



FIG. 7.

Lachenalia aloides var. *vanzyliae*; 1. Flower side view; 2. Flower from below; 3. Longitudinal section of flower $\times 2$; 4. Upper outer perianth segment; 5. Upper inner perianth segment; 6. Gynoecium. (van Zyl NBG hort. 2802/1927).

Type Material: Cape Province—3218 (Clanwilliam): Top of Piketberg Mt. above town, cultivated at Compton Herbarium (-DC), 14/9/1966, W. Barker 10349 (NBG, holotype).

Plant up to 260 mm, usually less. *Bulb* ovoid, 10–20 mm diam; outer tunics membranous, light brown. *Leaves* two or one, blade 28–250 mm long, 10–50 mm broad, lanceolate, ovate-lanceolate or lorate, light green, usually spotted above with light purple, occasionally almost pustulate; loosely clasping base, plain or lightly spotted. *Peduncle* slender, spotted with maroon. *Inflorescence* racemose, up to 120 mm long, 40–50 mm diam., few to many-flowered, lax; pedicels 3–7 mm long; flowers pendulous; bracts membranous, white, narrow-lanceolate, usually some aborted flowers at the apex. *Flowers* tubular, 15–20 mm long; tube pale viridian, 3–4 mm long, usually narrowed toward the base, very occasionally rounded; outer segments oblong, 12–15 mm long, white with viridian keels and yellow-green gibbosities; inner segments obovate-oblong, emarginate, pale yellow-green with white margins, 10–18 mm long; stamens white, as long as inner segments; ovary obovoid, pale green; style white, as long as stamens. *Capsule* obovoid, membranous. *Seed* globose with a long terminal inflated aril.

DIAGNOSTIC CHARACTERS

Var. *vanzyliae* differs from all the other colour varieties of *L. aloides* in having pale delicately shaded flowers, pale viridian at the base, the outer segments white with viridian keels and pale yellow-green gibbosities, the inner segments longer than the outer pale yellow-green, shading to white at the margins.

This attractive variety of *L. aloides* is known to occur on the Piketberg, Porterville, Elands Kloof, Cedarberg and Twenty Four Rivers mountain ranges. It is named in honour of Mrs van Zyl who first introduced it into Kirstenbosch in 1927, where it flowered in 1929 and was illustrated and

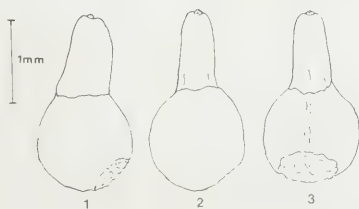


FIG. 8.

Lachenalia aloides var. *vanzyliae*: 1. Seed side view; 2. Seed from above. 3. Seed from below. (Barker 10349).

given its manuscript name. At the time it was thought to be sufficiently distinct to be given specific rank, but as *L. aloides* has been found in so many colour varieties and the seed of this plant conforms to the species pattern, it seems best to accommodate it as a variety.

Evidently it was known to Linnaeus filius for in his *Supplementum Plantarum* p. 205 (1781), under the name *Phormium aloides* he describes the flowers as—"Floribus nutantibus cylindrico-infundibuliformis. Variat corollis luteis, corollis croceis, corollis sanguineis apice purpureis, corollis albivirescentibus, et variat proportionem inter petala exteriora et interiora. Species difficile determinatur".

On the Piketberg range, var. *vanzyliae* grows on the same rocky areas as another variety, which has much longer yellow flowers tinged with green on the keels and tips of the inner segments, while the buds are red. Only one plant has been found which is obviously a cross between the two varieties, as the flowers are intermediate in length, pale yellow in colour and are tinged with viridian at the base.

L. aloides as a complex species, including its varieties, is widely distributed, from sea level to high altitudes. It has been recorded from rocks close to the sea at Cape Point, and northwards as far as Lamberts Bay and eastwards to Skipskop in the Bredasdorp division. It extends inland on rocky outcrops and the mountain ranges, from Bains Kloof to the Piketberg and Cedarberg in the north. Some of the varieties are endemic to very restricted areas. It is the most varied and colourful species in the genus, and probably the best known and widely cultivated, and has frequently been used for hybridisation.

SPECIMENS EXAMINED

CAPE PROVINCE—3218 (Clanwilliam): Piquetberg Mt. (-DC), Sept. 1929, *Mrs van Zyl s.n.* hort. NBG 2802/1929 (BOL); Kapteins Kloof, Piquetberg, 11/9/1935, *Pillans 7673* (BOL); Koggelmanderskop, Piquetberg Mt., 28/9/1953, *Dr. Brink s.n.* sub NBG 82128 (NBG); Piquetberg Mt., 10/9/1953, *Mrs Brink s.n.* sub NBG 72204; Top of Versveld Pass, Piquetberg, 10/10/1955, *de Wet s.n.* sub PRE 00917 (PRE); Piquetberg Mt. top, 9/9/1963, *Thomas s.n.* sub NBG 93629 (NBG); Piquetberg Mt. top, 14/9/1965, *Oliver s.n.* sub NBG 94934 (NBG); Piquetberg Mt. top above town, 14/9/1966, *W. Barker 10349* (NBG, holo.); Piquetberg Mt. top, 6/10/1971, *Thomas s.n.* sub NBG 93040 (NBG).

—3219 (Wupperthal): Crystal Pool, Cedarberg (-AC), 22/9/1930, *Barnes s.n.* sub BOL 21936 (BOL); Elands Kloof, Citrusdal to Ceres road (-CA), 30/9/1944, *W. Barker 3060* (NBG); Elands Kloof Mts., 7/10/1936, *Malan s.n.* (BOL); Elands Kloof, 26/9/1936, *Lewis s.n.* sub BOL 22100 (BOL); Olifants River near Warmbaths, 22/9/1911, *Stephens*, Percy Sladen Mem. Exp. 7742 (K); Porterville Mts. (-CC), 8/10/1976, *D. Rust s.n.* (STE); Porterville Mts., S end of Teefontein Farm, 10/10/1966, *M. Thompson 234* (STE).

—3319 (Worcester): Twenty Four Rivers Mts. (-AA), 18/10/1954, *Esterhuysen 23773* (BOL).

Inexact locality: C.B.S. *Sparman s.n.*, Herb. Castromii (S).

ACKNOWLEDGEMENTS

I am much indebted to Dr. J. P. Rourke for the Latin translations of the diagnoses, and to Miss C. Malan for the Afrikaans translation of the abstract.